REMARKS

Applicant appreciates the time taken by the Examiner to review Applicant's present application. This application has been carefully reviewed in light of the Official Action mailed April 19, 2005. Applicant respectfully requests reconsideration and favorable action in this case.

Claim Amendments

Claims 1, 12, and 14 have been amended for clarification. No new matter has been added.

Rejections under 35 U.S.C. § 103

Claims 1-5 and 10-18 stand rejected as obvious over U.S. Patent No. 6,509,898 ("Chi") and U.S. Patent No. 6,484,149 ("Jammes"). Claims 6-9 stand rejected as obvious over Chi and Jammes in view of U.S. Patent No. 6,144,962 ("Weinburg"). To establish a *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP § 2143.03. The pending Claims are not obvious in view of the cited art, as described in further detail below.

Claims 1-18

Independent claim 1 recites,

> [a] system for graphically displaying interaction data between items in a retail setting, for various retailing-related activities, the system comprising:
>
> a general purpose computer having memory capable of operating pursuant to instructions comprising an algorithm, wherein the algorithm further comprises the steps of:
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> loading an interaction metric between retail items into memory;
>
> optimizing placement of nodes and edges pursuant to the interaction metric, wherein nodes represent retail items and edges represent interactions between retail items; and
>
> generating a graphical representation of the nodes and edges with corresponding interaction metrics.

The invention relates to retail items for sale. Claim 1 discloses, in part, loading an interaction metric between retail items and generating from said interaction metric a graphical representation of the interactions between retail items. In particular, with nodes representing retail items and edges representing interactions between retail items, Claim 1 recites optimizing placement of nodes and edges according to the interaction metric, and generating a graphical representation of the nodes and edges with corresponding interaction metrics. Independent Claims 12, 13, and 14 recite similar limitations, i.e., the claimed interaction metric contains information regarding the interaction of at least one retail item with at least one other retail item.

Retail interaction data is concerned with items purchased together. As there is no predefined hierarchy or path between retail items, retail items interact freely. Therefore, any retail item can have an interaction with any other retail item. A retail interaction metric reflects the interactions between retail items (i.e., may reflect probability of sale of a second item given the sale of a first item). Thus, retail interaction data may indicate how the sales and/or prices of one item may affect sales of any other item(s). For example, if ice cream is purchased by a consumer, ice cream cones may have a higher probability of purchase by the same consumer. Similarly, if an apple pie is purchased, a cherry pie may have a lower probability of purchase. Likewise, an increase in price in corn dogs may cause a lower corn dog purchase probability, but a higher purchase probability of both hot dogs as well as hot dog buns.

An interaction metric between retail items may describe numerous, complex interaction relationships between retail items. Because retail items are freely related, there is generally no limit to the number or types of retail items that may be purchased together. Further, the sale of a retail item is not reliant upon any predefined relationships between the retail items. For example, one can buy motor oil and/or windshield washer fluid without ever having bought a car. These examples cite only a few retail items; however interaction data can show the relationships between numerous retail items. Also, although these examples cite only a few possible interactions, the claimed interaction metrics can reflect numerous relationships between retail items. As described by the specification, such relationships include, for example, mutual cooperation, competition, exploited cooperation and parasitism.

Interaction data can be represented through use of an interaction metric and interactions between items can be displayed graphically. An exemplary interaction metric described in the specification includes:

$$IM(i,j) = \frac{\sum_{t=1}^{N}\left((qty_{ti} - E[qty_i]) \cdot (qty_{tj} - E[qty_j])\right)}{\sqrt{\sum_{t}^{N}\left((qty_{ti} - E[qty_i])^2 \cdot (qty_{tj} - E[qty_j])^2\right)}}$$

Such interaction metric may be used to determine whether items are complimentary or supplementary. In the above examples, ice cream and ice cream cones are complimentary, while apple and cherry pies are supplementary. Such data can be represented graphically through using the above interaction metric according to the invention.

Thus, the invention is concerned with loading an interaction metric describing relationships between freely interacting retail items, and generating a graphical representation of the relationships between retail items using the interaction metric.

In contrast, Chi is concerned with web site display methods which reference web site usage information to generate a graphical model. As discussed below, Chi provides graphical models based on either data that does not express interactions or data that models the usage of a _predefined_ linkage between items. Neither of these models of Chi rely on an interaction metric between retail items that models the free (i.e., not predefined) interactions between items.

Webpage Usage is not an Interaction Metric

Chi does not teach or suggest an interaction metric. The Examiner cites Chi - col. 7, lines 36-45 and Col. 8 lines 27-53 as disclosing the limitation of loading into memory an interaction metric. However, examination of the cited portion fails to disclose an interaction metric.

Chi appears to teach creating a graphical model by positioning nodes based upon the respective node's usage. For example, a node may represent a particular webpage, and usage may be either number of webpage 'hits' or total dwell time at the webpage. The usage of an individual webpage, however, does not express the interaction between webpages, much less retail items, because the usage statistics apply to individual webpages.

In other words, the website usage information of Chi reflects only the usage of individual webpages, where webpage usage for each individual webpage may be quantified in a variety of ways. For example, webpage usage may be quantified as number of visitors to a webpage,

total visit (or dwell) time, or even average dwell time. None of these measurements reflect interactions between different pages.

While Chi does teach building a graph of the usage and laying out the graph based, for example, on the popularity of webpages, this graphical model does not model an interaction metric. Rather this graph is built based on statistics related to individual webpages (e.g., usage statistics) and not an interaction metric that models interactions between different items. Consequently, the webpage usage based model of Chi does not use an interaction metric or use an interaction metric to optimize placement of nodes.

Link-Based Usage is not an "Interaction Metric Between Retail Items"

In another embodiment of Chi, a usage parameter can specify the number of times the link is used. This link based usage parameter merely provides data as to how many times a predefined path has been used. Such a parameter, however, requires a predefined link or path between the items.

As noted above, however, retail items freely associate. Thus, retail items do not necessarily have predefined hierarchal relationships with each other. As there is no predefined path between retail items, the path usage (i.e., link usage) metric of Chi, which requires a predefined path, is not an interaction metric between retail items. Consequently, Chi does not teach or suggest loading an interaction metric between retail items.

The Examiner also cited Jammes in this rejection. In particular, the Examiner asserts that Jammes teaches displaying nodes representing items and edges representing the relationships between items. Applicants respectfully traverse this assertion. Jammes provides a method for hierarchal display of items in a webpage. To demonstrate nodes in the teachings of Jammes, the Examiner has cited FIG. 4, which illustrates items arranged in a hierarchy and labeled "store", "automotive", and "computer". Applicants assert the items of Jammes are not retail items, i.e., "store" and "automotive" are not retail items. Further, the Examiner has cited the hierarchal tree-like structure of FIG. 4, which indicates parent/child relationships, as the claimed retail interactions. Applicants respectfully disagree. Retail interaction data is concerned with sales interactions of freely-associated retail items. The hierarchy of Jammes, on the other hand, simply provides an organizational scheme to display items. This hierarchy, however, is not an interaction metric nor does it provide interaction data as to how the retail items themselves actually interact. Moreover, even though in Jammes a webpage can include links to popular cross-sale items, this information does not appear to be used to optimize

<u>placement of nodes and edges</u>. For at least these reasons, the cited art does not teach or suggest the limitations of the pending claims. Applicants assert pending Claims 1-18 are patentably distinct in view of the cited art.
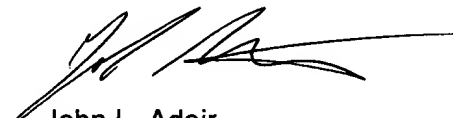
As described above, Independent Claim 1 is patentably distinct. Independent Claims 12, 13, and 14 recite similar limitations, and thus are patentably distinct for at least the same reasons as Independent Claim 1. Similarly, Claims 2-11 and 18 depend from Claim 1, and thus recite the limitations of Claim 1. Claims 15-17 depend from Claim 14, and thus recite the limitations of Claim 14. Accordingly, all pending claims are patentably distinct and withdrawal of the rejection of Claims 1-18 is respectfully requested.

Applicant has now made an earnest attempt to place this case in condition for allowance. Other than as explicitly set forth above, this reply does not include an acquiescence to statements, assertions, assumptions, conclusions, or any combination thereof in the Office Action. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests full allowance of Claims 1-18 The Examiner is invited to telephone the undersigned at the number listed below for prompt action in the event any issues remain.

The Director of the U.S. Patent and Trademark Office is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 50-3183 of Sprinkle IP Law Group.

Respectfully submitted,

Sprinkle IP Law Group
Attorneys for Applicant

John L. Adair
Reg. No. 48,828

Date: August 18, 2005

1301 W. 25th Street, Suite 408
Austin, TX 78705
Tel. (512) 637-9220
Fax. (512) 371-9088